Allied Telesis™

AT-WNP300N

IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter

Installation Guide

PN613-001218 Rev. A

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SAFETY NOTICE

- ✓ Do not change any component.
- ✓ Only qualified technicians are allowed to service the equipment.
- ✓ Observe safety precautions to avoid electric shock

LIMITATION OF LIABILITY AND DAMAGES

THE PRODUCT AND THE SOFTWARES WITHIN ARE PROVIDED "AS IS," BASIS. THE MANUFACTURER AND MANUFACTURER'S RESELLERS (COLLECTIVELY REFERRED TO AS "THE SELLERS") DISCLAIM ALL WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE. IN NO EVENT WILL THE SELLERS BE LIABLE FOR DAMAGES OR LOSS, INCLUDING BUT NOT LIMITED TO DIRECT, INDIRECT, SPECIAL WILFUL, PUNITIVE, INCIDENTAL, EXEMPLARY, OR CONSEQUENTIAL, DAMAGES, DAMAGES FOR LOSS OF BUSINESS PROFITS, OR DAMAGES FOR LOSS OF BUSINESS OF ANY CUSTOMER OR ANY THIRD PARTY ARISING OUT OF THE USE OR THE INABILITY TO USE THE PRODUCT OR THE SOFTWARES, INCLUDING BUT NOT LIMITED TO THOSE RESULTING FROM DEFECTS IN THE PRODUCT OR SOFTWARE OR DOCUMENTATION, OR LOSS OR INACCURACY OF DATA OF ANY KIND, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY, EVEN IF THE PARTIES HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE ENTIRE RISK AS TO THE RESULTS AND PERFORMANCE OF THE PRODUCT OR ITS SOFTWARE IS ASSUMED BY CUSTOMER. BECAUSE SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO THE PARTIES. IN NO EVENT WILL THE SELLERS' TOTAL CUMULATIVE LIABILITY OF EACH AND EVERY KIND IN RELATION TO THE PRODUCT OR ITS SOFTWARE EXCEED THE AMOUNT PAID BY CUSTOMER FOR THE PRODUCT.

ELECTRICAL SAFETY AND EMISSIONS STANDARDS

This product meets the following standards.

U.S. Federal Communications Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Radiation Exposure Statement: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

CE Marking Warning

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

EN60950-1: 2006

Safety of Information Technology Equipment

EN 50385: 2002

Product standard to demonstrate the compliance of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110MHz - 40 GHz) - General public

EN 300 328 V1.7.1 (2006-10)

Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

EN 301 489-1 V1.8.1 (2008-04)

Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements

EN 301 489-17 V1.3.2 (2008-04)

Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems.

This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.

This device may not be used for setting up outdoor radio links in France and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 – 2483.5 MHz. For detailed information the end-user should contact the national spectrum authority in France.

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Preface

Purpose of This Guide

This guide is intended for customers and/or network administrators who are responsible for installing and maintaining the AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter.

How This Guide is Organized

This guide contains instructions on how to install AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter.

Chapter 1 **Overview,** describes the features, LEDs and ports on the equipment.

Chapter 2 **Installation,** describes how to install and configure the equipment.

Chapter 3 **Troubleshooting,** describes what you should do when the device does not operate correctly.

Document Conventions

This guide uses several conventions that you should become familiar with before you begin to install the product:

Note
A note provides additional information. Please go to the Allied Telesis website **http://www.alliedtelesis.com** for the translated safety statement in your language.

Warning
A warning indicates that performing or omitting a specific action may result in bodily injury.

Caution
A caution indicates that performing or omitting a specific action may result in equipment damage or loss of data.

Contacting Allied Telesis

This section provides Allied Telesis contact information for technical support as well as sales and corporate information.

Online Support

You can request technical support online by accessing the Allied Telesis Knowledge Base: **http://www.alliedtelesis.com/kb/**. You can use the Knowledge Base to submit questions to our technical support staff and review answers to previously asked questions.

Email and Telephone Support

For Technical Support via email or telephone, refer to the Support & Services section of the Allied Telesis web site: **http://www.alliedtelesis.com/support/**.

Warranty

For product registration and warranty conditions please visit Allied Telesis website: **http://www.alliedtelesis.com/support/warranty/**

Where to Find Web-based Guides

The installation and user guides for all Allied Telesis products are available in portable document format (PDF) on our web site at **www.alliedtelesis.com**. You can view the documents online or download them onto a local workstation or server.

Returning Products

Products for return or repair must first be assigned a return materials authorization (RMA) number. A product sent to Allied Telesis without an RMA number will be returned to the sender at the sender's expense.

To obtain an RMA number, contact Allied Telesis Technical Support through our web site: **http://www.alliedtelesis.com/support/**.

Sales or Corporate Information

You can contact Allied Telesis for sales or corporate information through our web site: **http://www.alliedtelesis.com/**. To find the contact information for your country, select Contact Us -> Worldwide Contacts.

Firmware & Software Updates

New releases of firmware or software for our managed products are available from either of the following Internet sites:

- Allied Telesis web site: **http://www.alliedtelesis.com/support/software/**
- Allied Telesis FTP server: **ftp://ftp.alliedtelesis.com/**

If you prefer to download new firmware or software from the Allied Telesis FTP server from your workstation's command prompt, you will need FTP client software and you must log in to the server. Enter "anonymous" for the user name and your email address for the password.

Tell Us What You Think

If you have any comments or suggestions on how we might improve this or other Allied Telesis documents, please contact us at **http://www.alliedtelesis.com**.

Chapter 1: Overview

The AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter is for your desktop and mini PC. It provides continuous, high-speed access between your PC and wireless access point. You administer the AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter using the AT-WNP300N Config Utility.

Features

The features of the AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter include:

- Provide theoretical 150Mbps throughput for uploading and downloading.
- Support WPA, WPA2 wireless encryption.
- Support Wi-Fi Protected Setup (WPS), providing quick secured connection.
- Long and short PCI covers suitable for desktop and mini PC.
- Removable SMA antenna offers upgrade potential.

Back View

For the flexible use in desktop PC and mini PC, AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter provides two PCI covers. You can change the cover as need. There are two SMA antenna connectors on the cover, alone with two LEDs showing the link and activity status.

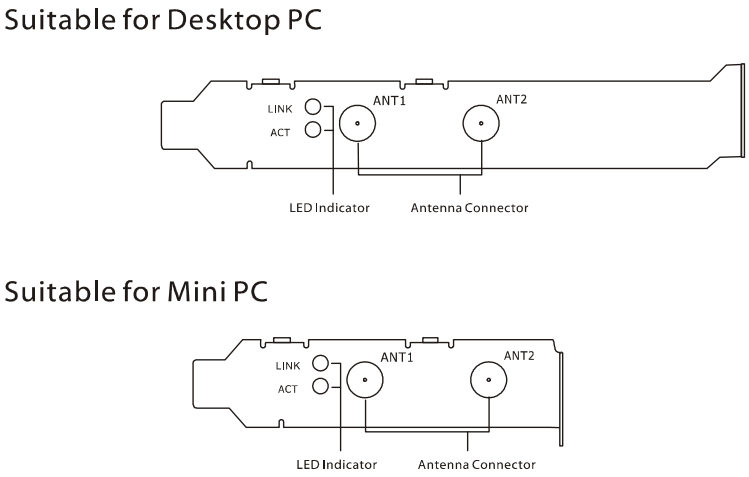

Figure 1: Back View

LEDs

The Link and Activity LED on the AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter is described in Table 1.

Table 1: LED Indicator

LED	State	Description
Link	Off	The adapter is radio off.
	On	The adapter is connected
Activity	Fast Blinking	The adapter is disconnected
	Off	The adapter is radio off.
	Slow Blinking	The adapter is disconnected or connected
	Fast Blinking	Data transmitting

Chapter 2: Installation

Reviewing Safety Precautions

Please review the following safety precautions before you begin to install the AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter.

Warning
Do not work on equipment or cables during periods of lightning activity.

Warning
Power off your PC and unplug the power cord before installation.

Warning
Operating Temperature. This product is designed for a maximum ambient temperature of 40°C.

All Countries: Install product in accordance with local and National Electrical Codes.

Caution
Do not install in direct sunlight, or a damp or dusty place.

Unpacking the Wireless Adapter

To unpack the AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter, perform the following procedure:

1. Remove all components from the shipping package.

Note: Store the packing material in a safe location. You must use the original shipping material if you need to return the unit to Allied Telesis.

2. Place the adapter on a secure, level surface.
3. Ensure that the following hardware components are included in your shipping package. If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.

Package Contents

- One AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter
- Two antennas
- Low profile bracket
- Driver and Utility CD-ROM
- This installation guide

Hardware Installation

To install AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter into your PC, perform the following procedure:

Note: AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter is compatible with Windows 2000, XP, and Vista. Check your operating system before installation.

Note: A screw driver is necessary to process the following operation.

1. Switch off your PC, unplug the power cord, and remove the case.
2. Choose an open PCI slot and remove the screw holding the PCI slot cover.
3. Install your wireless adapter and firmly press down on the mounting bracket. Then screw the mounting bracket, as shown in Figure 2.

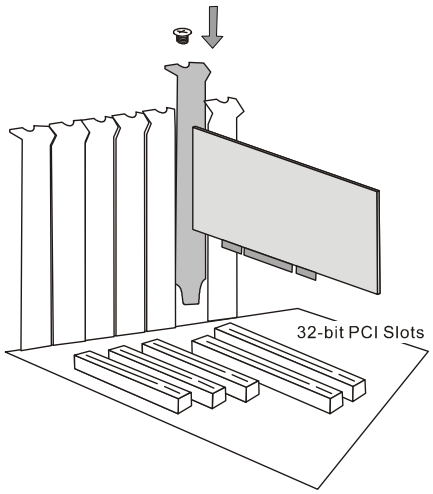

Figure 2: Installing Adapter into PC

4. Locate the antenna connectors on the back of the AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter, as shown in Figure 3.

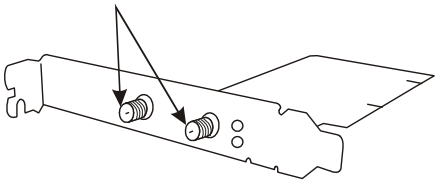

Figure 3: Location of the Antenna Connectors

5. Screw antennas to connectors, as shown in Figure 3.

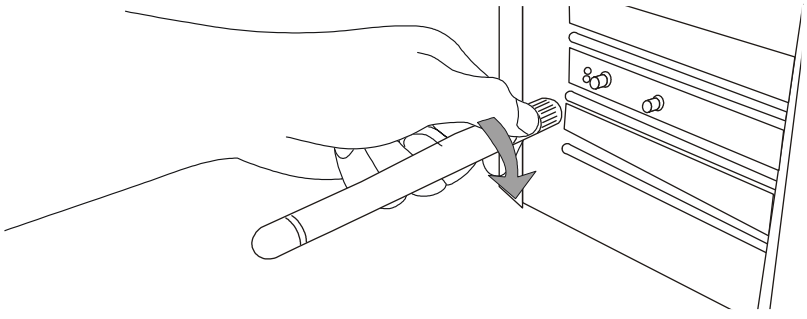

Figure 4: Connecting Antennas

You can try repositioning antennas until you get the best signal strength.

Installing the Driver and the Utility

To make the adapter work properly, you need to install the driver and the utility. Please perform the following procedure:

1. Switch on your PC and insert the CD-Rom, which is contented in the shipping package.
2. When you see the notification as shown in Figure 5, click "Cancel" to skip the process.

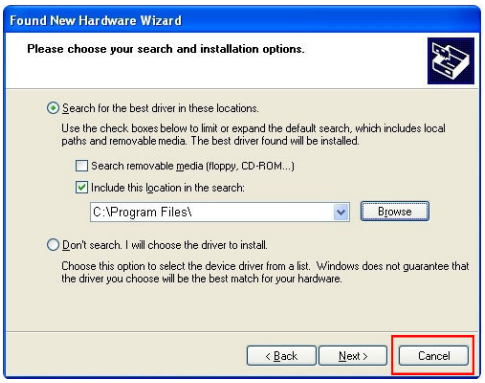
Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Program Files\
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

Figure 5: Canceling Hardware Notification

3. Run the CD-Rom. Click "Install" to start the installation, as shown in Figure6.

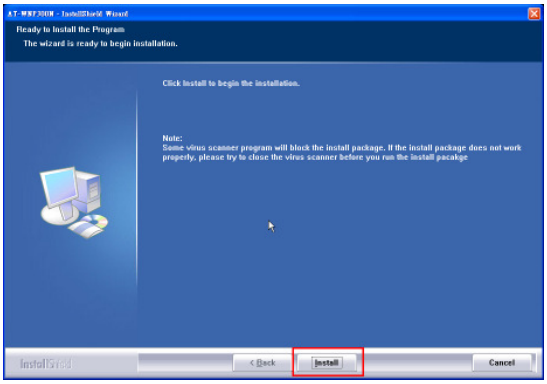
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
Note:
Some virus scanner program will block the install package. If the install package does not work properly, please try to close the virus scanner before you run the install package
InstallShield
< Back
Install
Cancel

Figure 6: Starting the Installation

4. Click "Finish" when the installation is completed, as shown in Figure 7.

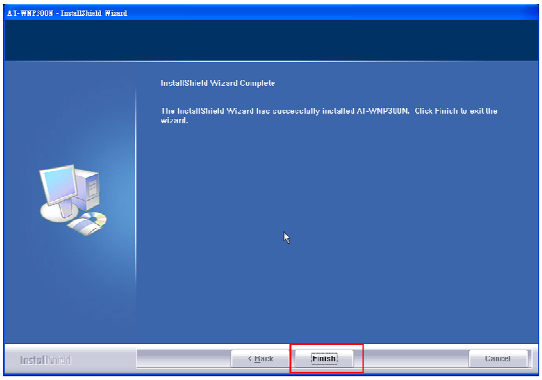

Figure 7: Completing the Installation

After the installation, the Config Utility shows up, as shown in Figure 8, and ready for wireless connection. Please refer to the user manual for detail configurations.

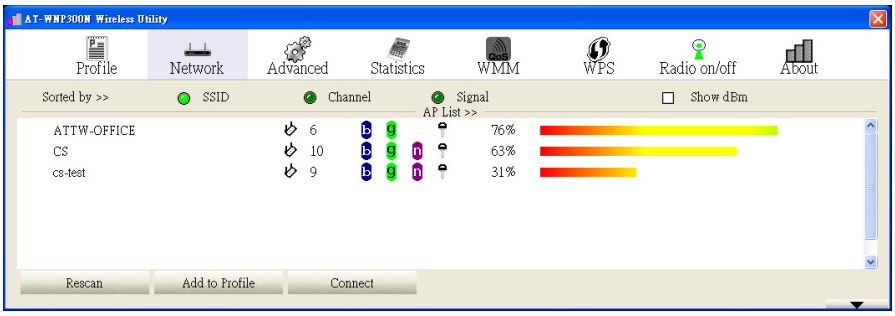

Figure 8: Config Utility

Warranty Registration

After installing your wireless adapter, please visit **http://www.alliedtelesis.com/support/warranty/** to register your product and check warranty conditions.

Chapter 3: Troubleshooting

I Cannot Build Wireless Connection

Please check the following:

- Is the wireless adapter inserted to PCI slot correctly?
- Are the driver and the utility installed correctly?
- Is the wireless AP providing service which covers the wireless adapter?
- Is the encrypted key entered correctly?
- Is the wireless communication specification of the AP compliable with the adapter?

The Hardware Status Is Incorrect

If encountering the following incorrect situations,

- The Device Manager shows an unknown device with [!] or [?] icons in Network adapters.
- The Device Manager does not show the device in Network adapters.
- The Device Manager shows more then one “Wireless 11n PCI card” items in Network adapters.

please perform the following steps:

1. Right click on the device item and select “Delete”.
2. Press “OK” when the confirmation dialog box shows up.
3. Re-install the driver and the utility according to Chapter2.

In Device Manager, the Device Shows a Cross.

A cross means the device is temporary disabled. Please perform the following steps:

1. In Device Manager, right click on the device item.
2. Select “Enable” to start up the device.

Appendix A: Technical Specifications

Physical Specifications

Standard	IEEE802.11b, IEEE802.11g, 802.11n (2.0)
Physical Interface	PCI 2.2 slot
Operating Voltage	3.3V
Antenna	2dBi Dipole Antenna (2.4GHz)
RF Connector	SMA Female-Reverse
Dimensions(PCB):	120 mm x 63 mm (W x D) (4.72 in. x 4.07 in.)

Environmental Specifications

Operating Temperature:	0 to 45°C
Storage Temperature:	-10 to 70°C
Operating Humidity:	15 to 95% (non-condensing)
Storage Humidity:	15 to 95% (non-condensing)
Operating Altitude Range:	3,000 m

Safety and Electromagnetic Emissions Certifications

EMI/RFI and Immunity:	FCC marked (Compliant with FCC Part 15 Class B; FCC Part 15B and 15C); CE Marked (compliant with EN 300 328; EN 301 489; EN 55022; EN61000; EN62311); C-Tick marked (Compliant with AS/NZS / CISPR 22 Class B)
Electrical Safety:	CE Marked (compliant with EN60950-1)

Appendix B: Radio Bands

Allied Telesis's AT-WNP300N IEEE802.11b/g/n 1T2R Wireless Fast PCI adapter is capable of operating in the 2.4GHz (IEEE 802.11b/g/n).

IEEE 802.11 n standard provides a major improvement in the speed at which data can be transferred over a wireless network. The amount of data being passed over most networks is increasing with many more large files, including photos, video clips (and videos), etc. being transferred.

IEEE 802.11 n standard uses Multiple Input Multiple Output (MIMO) exploiting multipath propagation; that increases the data rate by using a technique known as spatial division multiplexing. The data is split into a number of spatial streams and these are transmitted through separate antennas to corresponding antennas at the receiver. Increasing the spatial streams you get a greater utilization of the available bandwidth.